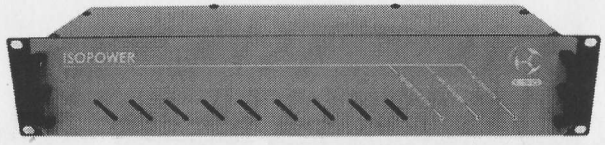
LSC
LIGHTING SYSTEMS

DNA
Distributed Network Advantage

ISO Series
INSTALLATION GUIDE



ISO Series V1.2.DOC

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1.0 INTRODUCTION **2**

2.0 INSTALLATION **3**

2.1 ISOPOWER RACK MOUNT 3
2.2 ISOPOWER WALL MOUNT 3
2.3 ISOPORT MODULE 4
2.4 ISONODE MODULE 7

3.0 CABLE SELECTION **8**

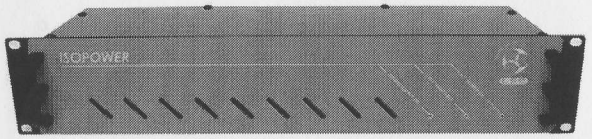
4.0 SPECIFICATIONS **9**

4.1 ISOPOWER SPECIFICATIONS 9
4.2 ISOPORT SPECIFICATIONS 9
4.3 ISONODE SPECIFICATIONS 9

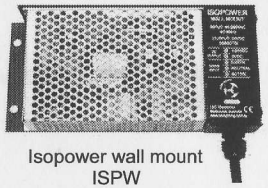
1.0 Introduction

The DNA (Distributed Network Advantage) system is a collection of components that are interconnected to provide a versatile DMX512 distributed network. The ISOseries of products are part of the DNA system and consist of the following devices:

ISOpower – A 2RU rackmounted or wall mounted power source that supplies +24VDC power to the **ISOport** and **ISOnode** network products. The rackmount unit can power upto 32 **ISOport/ISOnode** modules where the wall mount unit will power upto 12 **ISOport/ISOnode** modules. The rackmount unit has integrated front panel indicators that display operational status.



Isopower rack mount
ISPR



Isopower wall mount
ISPW

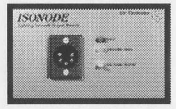
ISOport – A wall mounted DMX512 data outlet that is electrically isolated and buffered, with integrated Power and DMX data indicators. The **ISOport** is available with one, two or three XLR 5 pin output ports where each output port can drive upto 32 DMX512 devices. Input to output relationships and end of line termination can also be configured during installation. The **ISOport** is powered from a 24VDC nominal power supply.

ISO1

ISO2

ISO3

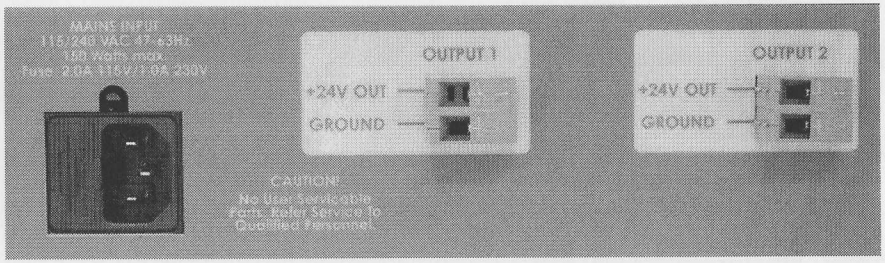
ISOnode – A wall mounted DMX512 data inlet that is electrically isolated and buffered, with integrated Power, upstream data and input data indicators. The **ISOnode** has a XLR 5 pin input connector that senses when a transmitting device has been connected and disconnects the upstream DMX512 data, allowing the transmitting source to control all devices connected downstream. If the transmitting source is removed or simply stops sending data, the **ISOnode** will automatically reconnect the upstream data to all devices downstream and restore network communication. The **ISOnode** is powered from a 24VDC nominal power supply.



2.0 Installation

2.1 ISOpower Rack mount

The **ISOpower** (ISPR) is designed for 19" rack installation. All connections are made at the rear of the chassis. The mains power supply is connected to the IEC input connector. Two 24VDC outputs are provided on 4mm" screw terminals. Output 1 and output 2 are internally hardwired together which allows multiple **ISOpowers** to be connected together for larger installations where load sharing and system redundancy is required.



ISPR connections at rear of chassis

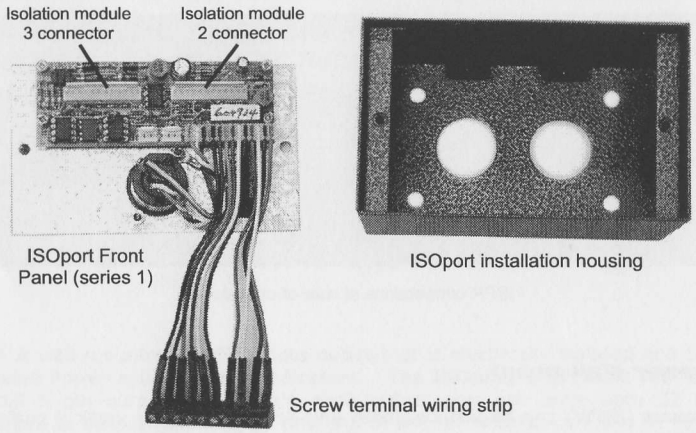
2.2 ISOpower Wall mount

The **ISOpower** (ISPW) can be installed onto any flat horizontal or vertical surface. Four mounting holes are located in each corner of the chassis. A protective cover at one end details the connector configuration for the screw terminals found underneath the cover.

ISPW connections with cover removed

2.3 ISOport module

Each **ISOport** module is supplied inside a metal installation housing that contains internal electronics which can be configured to suit individual installation requirements. The picture below shows a disassembled **ISOport** series 1.

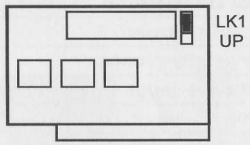

Isolation module 3 connector
Isolation module 2 connector
ISOport Front Panel (series 1)
ISOport installation housing
Screw terminal wiring strip

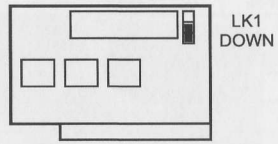
ISOport installation procedure.

1. Remove the two screws located on the front panel.
2. Separate the front panel and associated electronics from the installation housing (as shown above).
3. Locate the installation housing in the desired location and secure it using the four mounting holes located at the back of the housing. Four conduit ducting holes are provided in the installation housing.
4. Configure the **ISOport** input to output relationships with jumper LK1 as shown in table 1 on page 5.
5. Configure the **ISOport** input terminations if required. Refer to figure 1 on page 5.
6. Connect the DMX512 data and power input wiring to the screw terminal wiring strip as detailed in table 2 on page 6.
7. Replace the front panel electronics into the metal housing and secure with the two screws.

Table 1 - ISOport Configuration options (ISOport series 2 and 3 only)

The **ISOport** allows various input to output relationships to be configured. These options are configured by moving jumper LK1 on the isolation module to the desired position as shown in the diagram below.





Input to output relationship	Isolation mod. 2	Isolation mod. 3
DMX A Input > Output 1 DMX B Input > Output 2 DMX C Input > Output 3 (**ISOport** Series 3 only)	LK1 UP	LK1 UP
DMX A Input > Output 1 DMX A Input > Output 2 DMX A Input > Output 3 (**ISOport** Series 3 only)	LK1 DOWN	LK1 DOWN
DMX A Input > Output 1 DMX A Input > Output 2 DMX C Input > Output 3 (**ISOport** Series 3 only)	LK1 DOWN	LK1 UP
DMX A Input > Output 1 DMX B Input > Output 2 DMX A Input > Output 3 (**ISOport** Series 3 only)	LK1 UP	LK1 DOWN

Figure 1 - ISOport DMX512 input termination.

The **ISOport** has integrated input termination resistors that can be used when the **ISOport** is at the end of the DMX512 network and requires end of line termination. Each DMX512 input can be terminated by installing a jumper across the terminals shown below.

DMX C input DMX B input DMX A input (shown terminated)

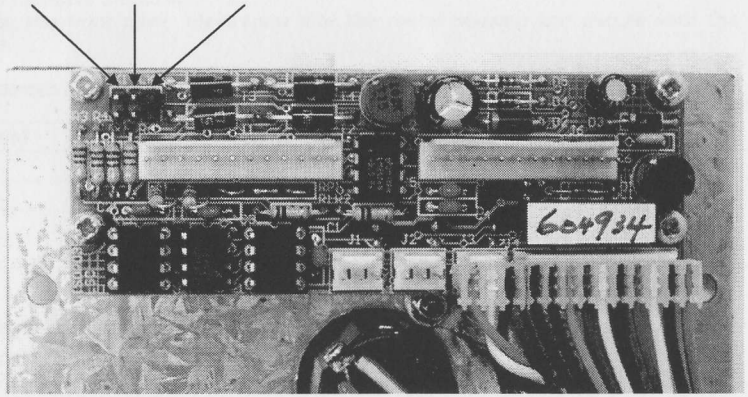
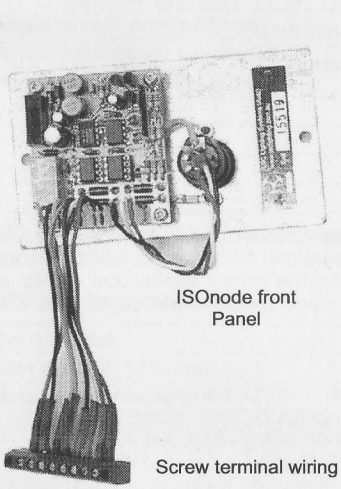


Table 2 - ISOport DMX512 input wiring detail.

Terminal	Color	Signal Description
1	RED	+24VDC Power
2	BLACK	Power supply ground
3	WHITE	DMX A + input
4	BLUE	DMX A - input
5	BLACK	COM A
6	YELLOW	DMX B + input
7	VIOLET	DMX B - input
8	ORANGE	DMX C + input
9	GREEN	DMX C - input
10	BLACK	COM B and COM C

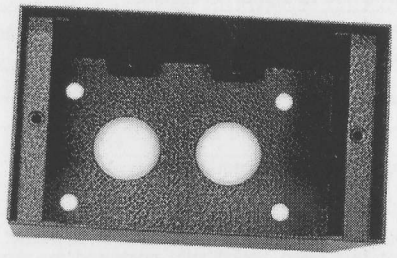
2.4 ISOnode module

Each **ISOnode** module is supplied inside a metal installation housing that contains the



ISOnode front Panel

Screw terminal wiring



ISOnode installation housing

internal electronics. The picture below shows a disassembled **ISOnode** module.

ISOnode installation procedure.

1. Remove the two screws located on the front panel.
2. Separate the front panel and associated electronics from the installation housing (as shown above).
3. Locate the installation housing in the desired location and secure it using the four mounting holes located at the back of the housing. Four conduit holes are provided in the installation housing.
4. Connect the DMX512 data and power input wiring to the screw terminal wiring strip as detailed in table 3 below.
5. Replace the front panel electronics into the metal housing and secure with the two screws.

Table 3 - Isonode DMX512 screw terminal wiring detail.

Terminal	Color	Signal Description
1	RED	+24VDC Power
2	BLACK	Power supply ground
3	WHITE	DMX A + output
4	BLUE	DMX A - output
5	BLACK	COM A
6	YELLOW	DMX A + input
7	VIOLET	DMX A - input
8	ORANGE	COM A

3.0 Cable Selection

The performance of any DMX network is directly related to the quality of cable chosen to convey the DMX information. DMX512 has a moderate data transmission rate of 250 Kbits/s, and therefore requires selection of a cable that does not significantly distort the signal or give rise to signal reflections.

Typical characteristics for a good DMX network cable include;

- Twisted pair with Nominal impedance of 100-120 ohms.
- low capacitance.
- Fully encased with braid **and** foil shielding.
- Conforms to EIA 485 requirements.

When using a single cable to carry +24VDC power **and** DMX data, it is important to select a cable that has been specifically designed for this purpose. DMX data conductors should be internally shielded from the power conductors and the power conductors (+24V and Ground return) in the cable must also be suitably sized to carry the current from the **ISOpower**/s to all connected DMX devices.

Cables used with audio systems are **NOT** suitable for DMX512 networks as they typically have higher capacitance, incorrect characteristic impedance and minimal shielding. At DMX512 data rates this can cause bit time distortion and signal reflections/overshoot.

For further detailed information on DMX512 and cabling requirements, refer to

ANSI E1.11 – 2004 "Entertainment Technology – USITT DMX512-A Asynchronous Serial Digital DATA Transmission Standard for Controlling Lighting Equipment and Accessories".

4.0 Specifications

4.1 ISOpower specifications

ISOpower Model	ISPR	ISPW
Output voltage (Volts)	24	24
Maximum output power (Watts)	150	60
Universal Input power supply (VAC)	85-264	85-264
Auto Frequency Selection (Hz)	47-63Hz	47-63Hz
CE and C-tick compliant	Yes	Yes
Height (mm)	89 (2RU)	41
Width (mm)	480 (19")	210
Depth (mm)	155	100
Weight (kg)	8	3

4.2 ISOport specifications

ISOport Model	ISO1	ISO2	ISO3
Number of DMX512 output ports	1	2	3
Output connector type	XLR 5 pin	XLR 5 pin	XLR 5 pin
Galvanically isolated and buffered outputs	Yes	Yes	Yes
Input voltage range (VDC) 24VDC nominal	12 - 30	12 – 30	12 - 30
Integrated input termination resistors	Yes	Yes	Yes
Integrated red power indicator	Yes	Yes	Yes
Integrated green data indicators per port	Yes	Yes	Yes
Power consumption (Watts) typically	2	3	4
CE and C-tick compliant	Yes	Yes	Yes
Height (mm)	74	74	74
Width (mm)	120	120	120
Depth (mm)	80	80	80
Weight (kg)	1	1	1

4.3 ISOnode specifications

Input connector type	XLR 5 pin
Galvanically isolated and buffered input	Yes
Input voltage range (VDC) 24VDC nominal	12 - 30
Integrated red power indicator	Yes
Integrated green upstream data indicator	Yes
Integrated yellow node active indicator	Yes
Power consumption (Watts) typically	2
CE and C-tick compliant	Yes
Height (mm)	74
Width (mm)	120
Depth (mm)	80
Weight (kg)	1

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